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resources of the United States, calendar year 1908." Mr. Hess gives also details of the industry by states, notes on the occurrence and uses of tungsten, and a partial bibliography. Tungsten is of wide occurrence, but the individual deposits can hardly be said to be large. As a rule they are "pockety"—that is, they occur in lenticular masses or small shoots. Many of those at the surface are quickly and easily mined, but it may then take all the profits derived from the first ore body to locate another one. The tungsten minerals used as ores are hübnerite, a tungstate of manganese; wolframite, a tungstate of manganese and iron; ferberite, a tungstate of iron; and scheelite, a tungsten of calcium. They generally occur in veins cutting igneous rocks that contain much silica, such as granite and granodiorite. Some simple tests for identifying these minerals are described by Mr. Hess. The most important use of tungsten is as an alloy for tool steel, to which it imparts the property of holding temper at a much higher temperature than high-carbon steels. When lathe tools are made of tungsten steel the lathe may be speeded up until the chips leaving the tool are so hot that they turn blue. It is said that about five times as much work can be done by a lathe built for such speeds and work and fitted with tungsten-steel tools as can be done by the same lathe with carbon-steel tools. From 16 to 20 per cent. of tungsten is ordinarily used in lathe tools.

THE *Journal* of the American Medical Association states that the production of radium has been carried on in Johannistal to such a degree that at present there is available a quantity equivalent to 1 gm. (15 grains) of the pure substance. Several tons of the ore had to be worked up before an appreciable amount was obtained. It is intended now to put the available quantity on the market solely for scientific purposes and for charitable institutions. It will be sold in quantities of 1 mg. (about $\frac{1}{60}$ grain) of the 5 per cent. and the 10 per cent. salt. Bromid of radium has been chosen. The price of the 5 per cent. salt will be 1,080 crowns (\$244) per portion ($\frac{1}{60}$ grain). The sale will take place in the radium institute just now in course of erection. A gift

by an anonymous benefactor, who gave \$100,000 for this purpose on the understanding that an equal sum should be provided by the state, enabled the Vienna University to obtain its radium research institute, the first in the world as regards equipment for investigators. The necessary appropriation having been voted, the building is now almost ready for use.

UNIVERSITY AND EDUCATIONAL NEWS

THE Chicago *Record-Herald* says: "Plans are in contemplation for giving the University of Chicago the finest physical laboratory in the United States, if not in the world. It is said that before all the plans are consummated the plant will have cost \$1,000,000. All of the money is to be furnished by Martin Ryerson, president of the board of trustees of the university, who also was the donor of the present Ryerson laboratory at the university."

MR. SAMUEL MATHER, of Cleveland, and his children, have offered to erect for the College for Women of Western Reserve University, a building for class and lecture rooms, in memory of Mrs. Florence Stone Mather.

THE contract for the new chemistry building of Rutgers College has been awarded. The building will be located about 100 feet north of the engineering building which was completed last year. It will be built of brick with terra cotta trim and will conform architecturally to the engineering building. On the first floor will be a large lecture room seating about 200, and three class rooms, two seating about 50 students and one for 30 students. On the second floor will be the qualitative laboratory for 96 students, the quantitative laboratory for 64 students, a laboratory for work in electrochemistry and one for water analysis, professors' private offices and laboratories and a supply room. In the basement is the laboratory for the elementary work of freshman year which will accommodate 162 men, a laboratory for organic chemistry accommodating 24 men and the necessary heating and ventilating apparatus and a stock room.

THE annual meeting of the Association of American Universities will be held at the University of Wisconsin, January 4 and 5.

THE University of St. Andrews will celebrate its five hundredth anniversary in September, 1911.

AN exchange of professorships and students between universities and academies among all the American republics has been proposed by Secretary Knox. The suggestion has commended itself to the governing board of the International Bureau of American Republics, which has recommended that the proposed interchange shall figure in the program of the fourth Pan-American Congress to be held at Buenos Ayres next summer.

MR. WALTER GEORGE SMITH, a Philadelphia lawyer, has resigned as a trustee of the University of Pennsylvania owing to the election of Dr. L. P. Lichtenberger as associate professor. He objected to Dr. Lichtenberger's views on divorce expressed by him at a meeting of the American Sociological Society in Atlantic City last year.

A NEW department of economic entomology has been organized in the College of Agriculture of the University of Wisconsin, and Mr. J. G. Sanders, of the U. S. Bureau of Entomology, has been appointed assistant professor in charge.

PROFESSOR H. G. BELL, of the Iowa State College, has been appointed professor of agronomy at the University of Maine.

MR. DONALD F. MACDONALD, junior geologist, U. S. Geological Survey, is this winter in charge of the work in geology at Tulane University, New Orleans.

DISCUSSION AND CORRESPONDENCE

NATIONAL LEADERSHIP IN EDUCATION

THE recent communications to *SCIENCE* of Mr. E. C. Moore and Mr. Theo. B. Comstock open a field that can not fail to be of interest to specialists in education, and of great importance to the country generally.

It is a good suggestion that the significance of the nation's work in education would be more adequately indicated by having a secretary of education than it ever could be by the office of commissioner of a bureau. If it should become a question of room in the President's cabinet, it might be entirely feasible to

combine the functions of the Departments of War and Navy, or gradually to do away with them altogether. This would be especially appropriate, and in the line of just recognition, since no factor in our national life bids fair to do more to render these departments useless than education itself.

In our system of state independence as opposed to national unity, it is very difficult to say what could be done were the nation to assume definite control of general education. The already established departments of the executive branch of the national government vary in the degree of control of the field assigned to them. The existence of absolute control of the Postmaster General and the divided control of the Attorney General may be explained on the basis of the fact that one has organized a system for every one's convenience at small cost, while the other may threaten to encroach on certain "inalienable rights." The degree of control in either and all cases would also vary with the confidence inspired by the acts of the department. The mind of the nation shows signs of moving strongly to those factors in its life which are obviously affecting the general welfare. Here would lie the great hope of a Department of Education.

There are certain phases of the possible work of a Department of Education that seem to the writer to be of paramount importance. The west, the east, the north and the south have developed antagonisms through isolation and through variety of locality interests. In all these regions magnificent work in constructive ideas in the field of education is being done in spots. But except for the evanescent results of educational conferences and the poorly circulated printed page, there is nothing to help a great idea to stick. If in the state of New York an educational leader formulates the idea that the schools and colleges should train their students to be intellectually honest, there should be some central authority to recognize the far-reaching application that idea might have in curing us of the habit of indirection in official and business dealings, and in removing sectional prejudice.